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(54) Title: SMALL-SCALE, CONCENTRATING, SOLAR CHP SYSTEM

(57) Abstract: ABSTRACT A high-efficiency, small-scale, combined heat and power, concentrating solar energy system, designed specifically for residential and other relatively low-power applications, rendering it cost-effective and economically viable. Two-axis tracking of a dish-like reflector of between 1 and 2 meters in aperture ensures very high concentrating ratios of between 200 and 800 suns or even higher. In consequence very high coolant outlet temperatures, of 120 - 180 0C may be reached at the outlet of the collector coolant, which may be oil, gas, or pressurized water. The high coolant temperatures are advantageous because they may be used for air-conditioning. The high concentration is advantageous because the efficiency of the photovoltaic cells is improved with higher concentration. The overall efficiency is greater than 60 %. Additionally, a simple but accurate drive, designed as a radio-dial drive, with substantially zero backlash, and substantially zero drift, is provided for driving the concentrating solar energy system. Preferably, two radio-dial drives are employed and tracking is performed along two axes, of an azimuth-elevation mount, a polar mount, or a cross mount.